Recreation use
and values in the
Missouri River
Basin

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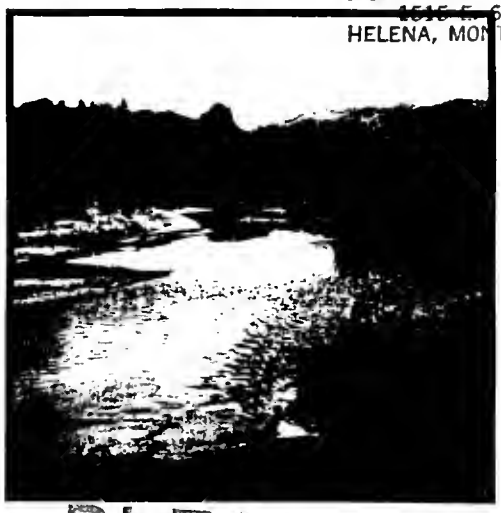
Survey Respondent:

Recreation Use and Values in the MISSOURI RIVER BASIN



PLEASE RETURN

STATE OF MONTANA

Department of Natural Resources and Conservation

I. First, we have some general questions about your opinions regarding use of Montana rivers and reservoirs. Please answer even if you rarely or never visit rivers or reservoirs for recreation.

1. Check the box that best represents how you feel about each of the three statements below.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
a. I enjoy knowing that my friends and family can visit rivers for recreation if they want to.	☐	☐	☐	☐	☐
b. Water quality in streams and rivers in this area of Montana should be improved.	☐	☐	☐	☐	☐
c. I think irrigation is the most important use of Montana's water.	☐	☐	☐	☐	☐

2. Do you participate in water-related recreation such as fishing, boating, or shoreline activities like picnicking, swimming, sightseeing or camping?

☐ yes ☐ no (if no, please go to Part IV)

3. About how many days so far this year did you participate in water-related recreation?

_____number of days so far this year

4. How many years have you been going to rivers or reservoirs to fish, boat or participate in other water-related activities?

_____years

If you haven't visited Missouri Basin rivers or reservoirs this year (see map on back of cover letter) please go to Part IV.

II. This Section asks about the trips you have made to eight rivers and reservoirs in the Middle Missouri River Basin of Montana. A trip can be part of a day, a full day, or several days long.

1. Which of the following rivers or reservoirs or their tributaries have you visited so far this year? (Please check each river or drainage you have visited. If you visited none of these rivers or reservoirs or their tributaries please go to #3.)

☐ Missouri R. from Three Forks to Canyon Ferry
☐ Hauser and/or Holter Reservoir
☐ Missouri River from Holter to Great Falls
☐ Missouri River from Great Falls to Fort Benton
☐ Smith River
☐ Canyon Ferry Reservoir
☐ Belt Creek
☐ Dearborn River

2. About how many trips did you make to any of these eight rivers and reservoirs or their tributaries so far this year for each of the following activities?

_____Number of trips where FISHING FROM BOAT was the main activity
_____Number of trips where FISHING FROM SHORE was the main activity
_____Number of trips where BOATING/FLOATING was the main activity
_____Number of trips where shoreline activities like PICNICKING, SWIMMING, SIGHTSEEING OR CAMPING were the main activity

3. How many more trips do you expect to make to these areas in the remaining months of 1989?

_____number of ADDITIONAL TRIPS in 1989

4. Did you make major equipment expenditures this year for river or reservoir-related equipment such as a boat, motor, trailer, rod or reel?

☐ no ☐ yes

If yes, about how much did you spend? $_____

The next few questions are about trips taken in 1988.

5. Which of the following rivers and reservoirs or their tributaries did you visit in 1988? (Please check each area you visited.)

☐ Missouri R. from Three Forks to Canyon Ferry
☐ Hauser and/or Holter Reservoir
☐ Missouri River from Holter to Great Falls
☐ Missouri River from Great Falls to Fort Benton
☐ Smith River
☐ Canyon Ferry Reservoir
☐ Belt Creek
☐ Dearborn River

6. As you may recall, 1988 was a year of severe drought in Montana. How did the low water levels in 1988 affect the number of trips you took to these areas last year? (please check one)

☐ fewer trips ☐ more trips ☐ no change

7. How did low water levels on these rivers and reservoirs or their tributaries affect the overall quality of your trips in 1988? (Please check one of the following)

☐ quality was raised ☐ quality was unchanged ☐ quality was lowered

8. How did low flows in 1988 affect the type of activities that you participated in? (Please check all that apply)

☐ boated or floated less ☐ participated in less shoreline activity
☐ boated or floated more ☐ participated in more shoreline activity
☐ fished less ☐ no change
☐ fished more ☐ other_____

9. In 1988, if you took FEWER TRIPS to any of these eight rivers and reservoirs or their tributaries, did you visit any other rivers and reservoirs instead?

☐ yes ☐ no

10. If yes, which ones? (please list alternative rivers visited)

_____

_____

The next few questions ask about trips you took to other areas of the Missouri River Basin in 1989.

11. Did you make any trips so far this year to the following rivers or their tributaries in the UPPER Missouri River Basin? (Please check each area visited)

☐ Big Hole ☐ Ruby ☐ Wise
☐ Jefferson ☐ Gallatin ☐ Madison
☐ Beaverhead ☐ Boulder ☐ Red Rocks

12. Did you make any trips so far this year to the following rivers and reservoirs or their tributaries in the LOWER Missouri River Basin? (Please check each area visited)

☐ Sun ☐ Teton ☐ Marias
☐ Judith ☐ Musselshell ☐ Big Spring Creek
☐ Missouri River below Fort Benton ☐ Fort Peck Reservoir

III. The next few questions ask about a specific trip you took to a river or reservoir in the Missouri River Basin. If you have not visited one of these areas in 1989, please go to Part IV. We are asking different people about trips taken at different times of the year.

1. Which Missouri River Basin river or reservoir (see map on back of cover letter) did you visit CLOSEST TO JULY 15TH OF THIS YEAR? A trip can be anything from an hour to several or more days(If the trip you took closest to July 15th was in another month, this is still ok.)

_____NAME OF RIVER OR RESERVOIR

2. What was the approximate date of this trip?

_____MONTH _____DAY

3. How many days did you spend at this river or its tributaries on this trip?

_____NUMBER OF DAYS

4. What was the MAIN ACTIVITY you participated in on this most recent trip? (please check one)

- ☐ fishing from shore
- ☐ fishing from a boat
- ☐ boating/floating
- ☐ shoreline recreation (picnicking, sightseeing, camping, or swimming)

5. Did you know what the water level in the river or reservoir or their tributaries was going to be before you visited the river? (please check one)

- ☐ knew exactly
- ☐ had a general idea
- ☐ had no idea

6. Would you have preferred to visit the river or reservoir or their tributaries at a different water level than what you experienced? (please check one)

- ☐ preferred higher water level
- ☐ preferred lower water level
- ☐ water level was good

7. What is the lowest water level at which you would visit this river or reservoir? (please check one)

- ☐ at the ACTUAL LEVEL I experienced
- ☐ 90 PERCENT of what I experienced
- ☐ 75 PERCENT of what I experienced
- ☐ 50 PERCENT of what I experienced
- ☐ 25 PERCENT of what I experienced
- ☐ 10 PERCENT of what I experienced
- ☐ I would visit the area NO MATTER WHAT the water level was.
- ☐ Other _____

8. How many trips have you made to area so far this year?

_____Number of trips so far this year.

9. How many years have you been visiting this river or reservoir?

_____Number of years visiting this area.

10. How would you rate YOUR KNOWLEDGE of this river or reservoir including how different water levels affect your recreational activity? (please check one)

- ☐ very knowledgeable
- ☐ knowledgeable
- ☐ only somewhat knowledgeable
- ☐ not knowledgeable

11. About how much money did you personally spend on this trip (if anything) on each of the following categories? If you can't recall the exact amount, please give your best estimate:

Transportation expenses (gas, oil, etc.)	$_____
Lodging, such as motel or campground fees	$_____
Food and beverages bought in stores	$_____
Food and beverages bought in restaurants	$_____
Equipment (such as tackle) for this trip	$_____
Other (list)_____	$_____
Total amount you spent on this trip	$ _____(TOTAL)

12. Approximately what percent of this total amount did you spend in Montana?

_____PERCENT SPENT IN MONTANA

13. Suppose that your share of the expenses to visit this area increased; would you still have made the trip if your cost had been $_____ more? (please check one)

- ☐ yes, I would still have made the trip
- ☐ no

If no, would you have made the trip if your share of the expenses had been only $1.00 more?

- ☐ yes ☐ no

If no, could you please indicate why not (check one):

- ☐ I could not afford the additional cost.
- ☐ I would have gone elsewhere if the cost increased.
- ☐ I already pay taxes to use public resources.
- ☐ I am opposed to fee recreation.
- ☐ I live close by so costs could not be that high.
- ☐ other_____

IV. This section asks how familiar you are with efforts to conserve natural resources — and about your own willingness to become involved.

1. In various parts of the country, trust funds have been set up to purchase water or land resources to conserve unique natural resources. The Nature Conservancy, Ducks Unlimited and the Rocky Mountain Elk Foundation are examples of the types of groups that can do this. How familiar are you with these efforts? (check one)

- ☐ I have never heard of such trust funds
- ☐ I have heard of them but don't know much
- ☐ I know a fair amount about them
- ☐ I know a great deal about them

2. Have you ever been a member of or donated money or time to a trust fund like this, or to other efforts to conserve natural resources such as rivers or wildlife habitat?

- ☐ yes, I have
- ☐ no, I have not

As you may be aware, sections of some Missouri Basin rivers such as the Big Hole, Gallatin, Smith, Sun, Judith and Musselshell typically have had low summertime flows. Low flows can often occur in other basin streams, especially in drought years. Often, existing flows in streams are not legally protected and could be reduced by new diversions of water.

To help protect existing flows, a private trust fund could be established to purchase or lease water to maintain fish, birds, wildlife and plants, and recreational uses. This would benefit people who use these rivers for recreation as well as those who believe having water in rivers is important. The effectiveness of the trust fund would increase with the amount of money contributed to it.

3. If you were contacted within the next month, would you pledge to make an annual contribution of $_____to help buy the water needed to maintain summer flows on Missouri Basin streams?

- ☐ yes (please go to #6)
- ☐ no (please go to #4)

4. Would you be willing to donate a smaller amount, such as $1.00 per year, to help purchase water when needed for these rivers?

☐ yes (please go to #6)
☐ no (please go to #5)

5. Could you please give your reason for not wanting to purchase an annual membership in this trust fund?

_____

_____

(After answering #5, please go to section V.)

6. Are there any of these nineteen Missoun Basin streams that you think should receive a higher priority from the trust fund? If so, which ones? (check up to three)

☐ Red Rocks	☐ Boulder	☐ Teton
☐ Big Hole	☐ Dearborn	☐ Marias
☐ Ruby	☐ Smith	☐ Judith
☐ Beaverhead	☐ Sun	☐ Musselshell
☐ Jefferson	☐ Belt Creek	☐ Big Spring Creek
☐ Gallatin	☐ Missouri R. from Three Forks to Canyon Ferry	
☐ Madison	☐ Missouri R. below Great Falls	

V. This final section will help us to understand the responses we receive.

1. Are you a member of any conservation, sport fishing, or boating organizations? (please check one)

☐ yes ☐ no

2. What kind of area do you live in? (please check one)

☐ in a town or city
☐ on the outskirts of a town or city
☐ in a rural area

3. What is your age? _____Years.

4. Are you: ☐ male ☐ female

5. What is the highest year of formal education you completed?

☐ some grade school	☐ some college
☐ finished grade school	☐ finished college
☐ finished junior high	☐ some postgraduate
☐ finished high school	☐ finished postgraduate

6. Which of the following best describes your occupation? (please check one)

☐ agriculture	☐ retired
☐ service or trades	☐ homemaker
☐ professional	☐ student
☐ other:_____	

7. Please check your household's income before taxes last year.

☐ under $5000	☐ $20,000-24,999	☐ $40,000-49,999
☐ $5,000-9,999	☐ $25,000-29,999	☐ $50,000-74,999
☐ $10,000-14,999	☐ $30,000-34,999	☐ $75,000-100,000
☐ $15,000-19,999	☐ $35,000-39,999	☐ over $100,000

SUMMARY OF STUDY RESULTS

The recreation survey and economic study of instream flows in the Missouri River basin above Fort Peck Dam was conducted by DNRC during the fall of 1989. The survey was designed to collect information on use patterns for water-based recreation, the economic value people place on these activities, and how activities and values are affected by varying water levels and flows. A total of 8,000 surveys were mailed to randomly selected holders of Montana drivers' licenses. Two thousand were sent to each of three subbasins (upper, middle, and lower) within the Missouri River basin. Another 2,000 were sent to out-of-basin Montana residents. An additional 1,000 surveys were sent to holders of nonresident conservation licenses. The overall response rate was 54 percent, with a total of 9,000 surveys sent, 7,061 of them delivered and 3,845 returned.

The survey included questions related to user characteristics, attitudes, use, and expenditures. Responses indicated that water for recreational use is very important to Montanans. The survey also measured the economic value of recreation and instream flow by asking people if they would have taken a trip to a river or reservoir if their cost had been a given dollar amount higher or if the water had been lower. People also were asked if they would donate a given amount to a trust fund to keep water in streams. The dollar amounts varied randomly among the various groups surveyed. The responses were used to determine how much people were willing to pay for recreation on the river at various flow levels and how much people were willing to pay to keep water in streams.

RECREATIONAL USE AND EXPENDITURES

Water-based recreational use in the Missouri River basin of Montana totaled over 2 million recreation days in 1989. Approximately 86 percent of this was resident use and 14 percent nonresident. Of this use, 61 percent occurred on rivers and streams and 39 percent on reservoirs. The dominant activity was fishing, accounting for about 50 percent of total use.

The average amount spent per 3- to 4-day trip for residents recreating in the basin was $113, compared to $640 for nonresidents. There was considerable difference for nonresident expenditures by water type, with an average of $797 per trip for visits to rivers versus $366 for visits to reservoirs. Total trip-related expenditures were concentrated above Three Forks, with 85 percent of all out-of-state expenditures being in this area. Similarly, nonresident expenditure was concentrated on streams and rivers (87 percent) as opposed to reservoirs.

RECREATIONAL TRIP VALUES

To determine the value of recreational trips, a series of

questions asked respondents to identify a river or reservoir in the Missouri River basin they had recently visited. The respondent was then asked his/her total trip expenses and a follow-up question of the form: "Suppose your trip expenses increased by (dollar amount), would you still have chosen to take the trip?" The suggested dollar amount was randomly varied in the surveys. The responses were used to estimate the value of a given recreational trip. Values were generalized for each subbasin.

Results indicate that trip value on a per-day basis for residents ranges from $40 to $66 across different subbasins and water types. For example, per-day value for resident trips to upper subbasin rivers averages $53, while trips to middle subbasin rivers for residents average $60 per day. The average values per day for nonresidents are $193 for basin rivers and $128 for basin reservoirs. Statistical analysis of the responses indicates that, for a 3- to 4-day trip, residents are willing to pay an additional $134 to $175 more than their trip cost. Nonresidents are willing to pay an additional $507 to $793 more than their trip cost.

The total estimated annual net economic value of water-based recreational use in the Missouri River basin of Montana is $110 to $177 million. This estimate is based on the estimated total days of use on rivers and reservoirs in each subbasin and estimated trip values per day.

INSTREAM FLOW VALUES

Respondents were asked what reduction in streamflow would cause them to cease taking recreational trips similar to one they recently had taken on a Missouri River basin stream. Responses were used to estimate how much the current level of use would change at varied flow levels. Results generally indicate the recreational use is most sensitive to changes in flow at a level around 65 to 70 percent of the flows experienced in 1989. The results also show that the current level of use would change little with small changes in flow.

To estimate the value of changes in flows, the respondents' projected changes in days of use at different flow levels were combined with estimates of trip value per day. Estimates of values varied considerably across subbasins and times of year. In general, changes in flows were valued much higher for the summer than the rest of the year and for the upper rather than lower Missouri subbasin. For example, an additional acre-foot in upper subbasin rivers (above Three Forks) was valued at $68 for the July-August period when flows are at approximately 75 percent of their 1989 level. An additional acre-foot in lower subbasin rivers (below Fort Benton) for the same period was valued at $11.

Values also were estimated for changes in the water levels of major basin reservoirs. The July-August estimates varied from $1.41 per acre-foot-month in the middle subbasin (Three Forks to Fort Benton) to $0.06 in the lower subbasin. Values for the rest of the year were from $1.14 in the upper subbasin to $0.02 in the lower subbasin.

INSTREAM FLOW TRUST FUND RESPONSE

The benefits of instream flow extend beyond recreational values and provision of habitat for fish and wildlife. Many people place a value on keeping adequate amounts of water in rivers and streams even though they will not directly benefit. Survey respondents were asked if they would donate to a hypothetical trust fund to maintain summertime flows in Missouri basin streams. The estimated average donation varied from $14 for out-of-basin Montana residents to $33 for nonresident anglers. The total trust fund contribution was estimated to be $10.4 to $16.7 million annually. These results indicate that people attach substantial value to flows in Missouri basin streams.

MONTANA DEPARTMENT OF
NATURAL RESOURCES & CONSERVATION
1520 EAST SIXTH AVENUE
HELENA, MONTANA 59620-2301